National Institute of Environmental Health Sciences

False alarms and close calls: A conceptual model of warning accuracy

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Abstract:

The false alarm rate (FAR) measures the fraction of forecasted events that did not occur, and it remains one of the key metrics for verifying National Weather Service (NWS) weather warnings. The national FAR for tornado warnings in 2003 was 0.76, indicating that only one in four tornado warnings was verified. The NWS's goal for 2010 is to reduce this value to 0.70. Conventional wisdom is that false alarms reduce the public's willingness to respond to future events. This paper questions this conventional wisdom. In addition, this paper argues that the metrics used to evaluate false alarms do not accurately represent the numbers of actual false alarms or the forecasters' abilities because current metrics categorize events as either a hit or a miss and do not give forecasters credit for close calls. Aspects discussed in this paper include how the NWS FAR is measured, how humans respond to warnings, and what are alternative approaches to measure FAR. A conceptual model is presented as a framework for a new perspective on false alarms that includes close calls, providing a more balanced view of forecast verification.

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Resource Description

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience:

audience to whom the resource is directed

Public

Early Warning System:

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure :

weather or climate related pathway by which climate change affects health

Extreme Weather Event

Extreme Weather Event: Other Extreme Event

Extreme Weather Event (other): Tornado

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

United States

Health Impact:

specification of health effect or disease related to climate change exposure

Injury

Intervention:

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology:

type of model used or methodology development is a focus of resource

Exposure Change Prediction

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Short-Term (